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ABSTRACT

The study of schema theory as part of the inquiry into the nature of language comprehension has drawn attention to the reader's central role in the construction of text-guided meaning. Contemporary schema theory represnts a major step in the effort to move away from a reductionist view of reading comprehension. Specifically, it focuses on what readers do to acquire meaning by mobilizing existing knowledge in an effort to make some sense of the text. Research involving schema has shown that there is a significant tendency for readers to impose a single interpretation upon an ambiguous passage and, if appropriate, to relate the passage to their own fields of study. A partial replication of a study by R. C. Anderson, R. C. Reynolds, D. L. Schallert, and E. T. Goetz (1977) which showed a significant tendency for readers to impose a single interpretation upon an ambiguous passage and to relate the passage to their own fields of study was conducted that yielded rather different results. In classes that had mixed enrollments having no relationship to the subjects' majors, students were much less likely to give predicted interpretations to the ambiguously written passages. Many students attended to the text ambiguity itself. Implications of the study are that reading may be viewed as a transaction rather than an interaction and that language should be viewed as contextually bound, not only in a linguistic sense, but in a mental and environmental sense as well. (MKM)

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Schemata, Context, and Comprehension

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Since the emergence of the 1970's version of schema theory as a major avenue of inquiry into the nature of language comprehension, attention has been drawn to the readers' central role in the construction of text-guided meaning. Researchers in reading are going beyond a narrow interpretation of comprehension as the apprehension and retention of text-provided meaning.

Reading is a process that probably can never be defined in the sense that one can draw a line and say "this is reading" and "this is not." As Wolf (1977) suggests, the term may function more usefully as an umbrella for a set of concepts and principles that can be generalized to include a wide

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range of behaviors and situations. He writes that "the reading of words is but a subset of a much more general human activity which includes symbol decoding, information integration and organization, and the use of various short-term and long-term memory systems" (p. 427). Reading theory, he suggests, brings together many fields once thought to be unrelated, a point which he exemplifies by applying reading theory to the field of art.

Related to this trend is a widening of the parameters of the larger areas of educational inquiry and research in the social sciences in general. Shrock (1977) has pointed out that traditional research methodologies, with their emphasis on internal control, greatly limit the generalizability of most findings, so that "the artificial and limited environments in which most of educational research has been conducted have been increasingly under attack" (p. 3). She describes a continuum from more to less reductionism as follows; (1) classical, systematic experimental design, characterized by strict controls for internal validity that emphasize the special nature of the experimental setting and thus limit generalizability; (2) meta-analysis, described by Glass (1976) as the attempt to provide an overriding analysis of specific analyses in individual studies toward the of providing a higher-level integration; (3) representative research design (Brunswik, 1956), which involves sampling from the range of situations to which research results will be generalized; (4) quasi-representative research design (Snow, 1974), which substitutes through description of situation as well as population characteristics for sampling, so that the whole context of the study can be considered along with the results;

(5) ecological psychology (Barker, 1965), which emphasizes the investigator's role as observer rather than manipulator of the situation and therefore leads to more naturalistic inquiry; (6) grounded theory (Glaser and Strauss, 1967), which provides for generation of theory and hypotheses from data as an alternative to reliance on a priori assumptions; (7) ethnography, or descriptive anthropology, which entails complete and accurate descriptions of specific behaviors from which generalizations can be derived, and (8) ecological inquiry (Bronfenbrenner, 1976), which draws increasingly broad circles of context around specific behaviors, including both the investigative setting and the cultural context. Various types of reading research fall at points along this continuum.

Mishler (1979), in an argument based on examples from three fields, has presented a strong case against context-stripping methodologies in social sciences research. He points out the paradox that, on the one hand, "we all know human action and experience are context dependent and can only be understood within their contexts," but that "that ordinary and common-sense understanding of meaning as context dependent has been excluded from the main tradition of theory and research in the social and psychological sciences and in the application of this tradition to educational research" (p. 2).

Contemporary schema theory represents a major step in the effort to move away from a reductionist view of reading comprehension toward an embracement of a larger and richer conceptualization. Specifically, it focuses on what

readers so to acquire meaning by mobilizing existing knowledge in an effort to make sense of the text. Thus, reading is believed to be a constructive process, whereby individuals make use of the text according to previously formed strategies and expectations. Adams and Collins (1977) summarize the process by stating that the text merely gives directions for the construction of personally derived meaning. This view constructs reading as a highly individualistic process because the uniqueness of each reader's experiences governs the nature of comprehension.

Studies confirming the tenets of schema theory show how the reader's own expectations do in fact control interpretation and recall. These include studies by Anderson, Spiro and Anderson (1977) and Spiro and Tirre (1979) demonstrating differential effects on recall by restaurant and supermarket perspectives; by Pichert and Anderson (1976) and Anderson, Pichert and Shirey (1979) comparing the perspectives of homebuyer and burglar on recall of features of a house; and by Anderson, Reynolds, Schallert and Goetz (1977) in which college students were asked to respond to ambiguously written texts. In the last study, it was assumed that particular majors would produce dominant schemata and that these would be evident in retellings, supporting the notion of two-way processing during reading. The results showed a significant tendency for readers to impose a single interpretation upon an ambiguous passage, and, if appropriate, to relate the passage to their own fields of study.

A partial replication of this study, which yielded rather different results, was conducted by the authors (Carey, Harste, Smith, 1979). Specifically, we introduced one significant variation into the study by collecting data in settings defined as situationally constrained and situationally less constrained. Anderson et. al. had collected data only in situationally constrained settings, that is, homogenous classes which were related to the subjects' majors. In the situationally less constrained settings (classrooms with mixed enrollments and having no relationship to subjects' majors), students were much less likely to give predicted interpretations to the ambiguously written passages. Table I shows the differences in results obtained from the two studies.

	Group	F-ratio		df
Anderson et. al.	total	48.61	.01	1,58
Replication	Situationally constrained	4.38	.05	1,69
	Situationally less constrained	2.77	.10	1,69

Table I: Interaction Between Passage and Background

In the situationally constrained setting, the replication confirmed the findings of the original study though at a lower level of significance. In the situationally less constrained setting, the replication did not confirm the original findings. These results suggest that the findings obtained in the earlier study were the

effect of an interaction between social constraints operating in the heads of the subjects. That is, social context as well as cognitive schemata affected the interpretation given to the ambiguous passages.

Interestingly, we also found that many students attended to the text ambiguity itself, either by commenting upon it or by attempting to preserve it in their retellings. These attempts to preserve ambiguity suggest that subjects were responding to the situation as it was set up by the experimenters, that is, as a reading or memory experiment. Because of the artificial nature of the passages, the ambiguity might have been viewed as the most prominent feature, and this view could lead to the strategy of trying to identify and characterize the ambiguity. If so, subjects were simultaneously monitoring the task situation as well as the meaning of the passage itself.

As is evident in the results of the replication reported, there are many factors in the experimental situation which might have impact on schema access and processing. These include all the elements of the situation controlled by the experimenter: the grouping of the subjects, the pjysical location in which the tests are being administered, the provision of test packets and other paraphernalia of formal testing, the alternation of tasks under timed conditions, and whatever other characteristics of a controlled experimental situation might be present. This set of contextual arrangements, moreover, were all contained within the larger context of a university class, which in turn existed within a context of past eduactional experiences and expectations.

In this study, therefore, attempts to retain the original ambiguity of the texts themselves might suggest that students were operating out of a mental set dictating that during testing one sticks very close to the text. This observation raises the question of whether comprehension is an artifact of the conditions under which it is induced. That is, school instruction, including test-taking, might delimit rather than facilitate the kinds of cognitive processing which take place. If this is the case, then the data on cognitive processing which have been collected in school settings might be a specialized and not very good subset of print processing behaviors, appropriately considered as artifacts of instruction. This is especially so as in the final analysis our real interest in comprehension is in learning (Smith, 1979).

Related to these observations is the notion of reading as semantic transaction rather than semantic interaction (Rosenblatt, 1978; Harste and Carey, 1979). The term transaction suggests a new event and begins to capture the idea of creative interplay between print settings and mental settings. Interaction, on the other hand, suggests a back and forth, almost additive relationship, as if elements from two sources were simply brought together. If interaction were the mode, one should be able to take retellings and parse them according to whether they were author or reader contributed. Yet such an analysis entails enormous difficulties; the retelling, or parts of it, simply cannot be pulled apart in this fashion. Some manner of permanent integration seems to have taken place.

To illustrate this point, the opening lines of ten randomly selected protocols for the prison/wrestling passage used in the replication study are presented:

Wrestling Theme:

-Louie is a wrestler.
-Louie was in some form of activity and was planning his escape.
-The passage deals with the thoughts and decisions going through Louie's head as he sizes up the predicament he has found himself in on the wrestling mat.

Prison Theme:

-Louie was in jail and he got up from a mat he was lying upon while he was planning his escape.
-The passage describes one man's mental journey of escaping from jail.

Other Themes:

-Louie is imprisoned, in his mind, being held unfairly with little type of evidence.
-Louie is being detained in chaines on a mat.
-Louie has been taken "hostage" by someone for someone for some reason.
-Louie is being "punished" for something he felt was unjust.
-Louie is a kid who is punished by his parents for something that that he did (bad).

Table II: Ten randomly selected opening sentences from 142 interpretations of the wrestling / prison passage.

All of these readers have created their own sense of situation in which what was read became meaningful. Even those with the same interpretation have quite different mental settings. One is struck with the divergent scenarios cast both for the protagonist and the author style, the latter ranging from description to stream-of-consciousness.

In our attempts to understand and test comprehension, we have traditionally ignored these reader-initiated approaches to the text and tended to look at how meaning is converged upon rather than at how it is expanded, the convergent rather that generative nature of language.

It is the view of these writers that, while it is important that through language we share meaning is expanded. What is printed on this page may mean more to the reader than it did to the writers when they composed it. Not only because of the print but because of the context in which it is read. Because of the particular mental set which the reader brings, the ideas presented here may make something click, producing a new idea, and the reader may even give us credit for a concept or idea we did not have. On the other hand, our language in the right context may have touched off a wrong click, which would lead us to say that the reader has misunderstood and made an error. But we must consider that the same process triggers both kinds of responses: creative interpretations and errors. We can't have one without the other.

In this regard, then, viewing language as contextually bound--not only

in a linguistic sense but in a mental and environmental sense as well--may provide the perspective we need in order to see perception as robust, print settings as dynamically involved with other settings, and comprehension as transaction rather that interaction. Clearly, to explore these perspectives reading comprehension needs to be studied in a variety of whole world contexts using a variety of research paradigms which can fine-tune our perception. The lines between psycholinguistics and sociolinguistics are, in an important sense, arbitrary. To focus attention on these lines can only constitute a barrier in our efforts to understand.

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